Operation - Repair - Parts

# Cordless Hand-Held Paint Sprayers

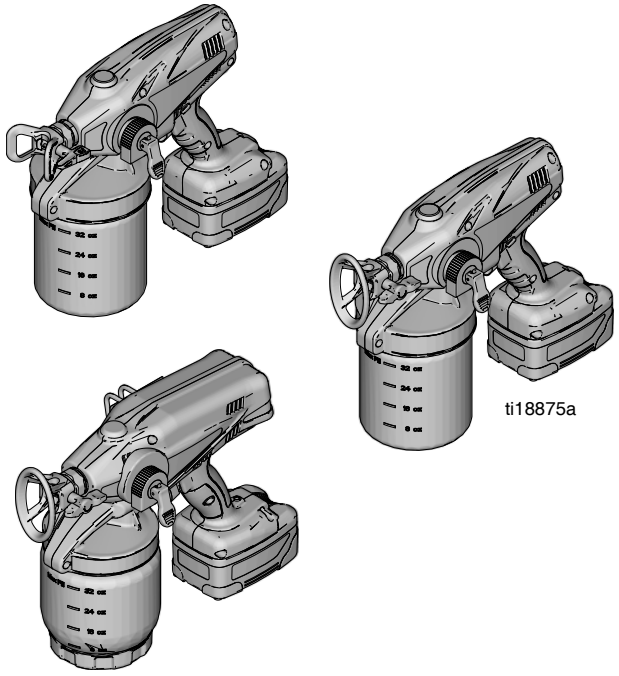
3A2589D
EN

***- For portable spray applications of architectural paints and coatings only -***
***- Not approved for use in explosive atmosphere locations -***

**IMPORTANT SAFETY INSTRUCTIONS**
Read all warnings and instructions in this manual. Save these instructions.

**All Models:**
*Maximum Working Pressure 2000 psi (14 MPa, 138 bar)*

| Model | Charger Voltage | Intertek |
|---|---|---|
| 16N657 | 120V | ✓ |
| 16M886 | 120V | ✓ |
| 16N660 | 120V | ✓ |
| 24R747 | 120V | ✓ |




## ⚠WARNING

**Use only water-based or oil-based (mineral spirit-type) materials with flash point greater than 100° F (38° C).** Do not use materials which state “FLAMMABLE” on the packaging. For more information about your material, request MSDS from distributor or retailer.

Use oil-based material outdoors or in a well-ventilated indoor area with a flow of fresh air.

**Spraying certain materials may cause static build-up in the sprayer that can result in static shock to the user.** If this occurs, first ensure the material has a flash point greater than 100° F (38° C) and does not state that it is FLAMMABLE anywhere on the package. If still feeling a static shock, the material likely contains a non-mineral spirits fluid such as, but not limited to, xylene, toluene, or naphtha, which can build up static. Switch to an alternative material.

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**Important User Information**

Before using your sprayer read this Operation manual for complete instructions on proper use and safety warnings.

## DO NOT RETURN THIS SPRAYER TO THE STORE!

**If you experience problems, contact Graco Product Support at 1-888-541-9788 or visit www.graco.com.**

Congratulations! You have purchased a high-quality sprayer made by Graco Inc. This sprayer is designed to provide superior spray performance with architectural paints and coatings. This user information is intended to help you understand the types of materials that can be used with your sprayer.

Before using this equipment, be sure to read and follow the information on your container label and ask for a Material Safety Data Sheet (MSDS) from your supplier. The container label and MSDS will explain the contents of the material and the specific precautions related to it.

Paints, coatings and clean-up materials generally fit into one of the following **3 basic categories:**

***WATER-BASED:*** The container label should indicate that the material can be cleaned up with soap and water. Your sprayer is compatible with this type of material. Your sprayer is **NOT** compatible with harsh cleaners such as chlorine bleach.

***OIL-BASED:*** The container label should indicate that the material is combustible and can be cleaned up with mineral spirits or paint thinner. The MSDS must indicate that the flash point of the material is above 100° F. Your sprayer is compatible with this type of material. Use oil-based material outdoors or in a well-ventilated indoor area with a flow of fresh air. See the safety warnings in this manual.

***FLAMMABLE:*** This type of material contains flammable solvents such as xylene, toluene, naphtha, MEK, lacquer thinner, acetone, denatured alcohol, and turpentine. The container label should indicate that this material is FLAMMABLE. This type of material is NOT compatible with your sprayer and CANNOT be used.

# Warnings

The following warnings are for the setup, use, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

## ⚠WARNING

**FIRE AND EXPLOSION HAZARD**

Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. To help prevent fire and explosion:

- Sprayer generates sparks. Do not spray or flush with flammable liquids.
- Use only water-based or oil-based (mineral spirit-type) materials with a flash point greater than 100° F (38° C).
- Keep spray area well-ventilated. Keep a good supply of fresh air moving through the area.
- Use oil-based material outdoors or in a well-ventilated indoor area with a flow of fresh air.
- Do not spray or flush with combustible materials near an open flame or sources of ignition.
- Paint or solvent flowing through the equipment is able to result in static electricity. Static electricity creates a risk of fire or explosion in the presence of paint or solvent fumes. Keep sprayer at least 10 in. (25 cm) away from objects while spraying or flushing.
- Do not smoke in the spray area.
- Do not operate light switches, engines, or similar spark producing products in the spray area.
- Keep area clean and free of paint or solvent containers, rags, and other flammable materials.
- Know the contents of the paints and solvents being sprayed. Read all Material Safety Data Sheets (MSDS) and container labels provided with the paints and solvents. Follow the paint and solvents manufacturer's safety instructions.
- Fire extinguisher equipment shall be present and working.

**SKIN INJECTION HAZARD**

High-pressure spray is able to inject toxins into the body and cause serious bodily injury. In the event that injection occurs, **get immediate surgical treatment**.

- Do not aim the sprayer at, or spray any person or animal.
- Keep hands and other body parts away from the discharge. For example, do not try to stop leaks with any part of the body.
- Always engage the trigger lock when not spraying. Verify the trigger lock is functioning properly.
- Always use the nozzle tip guard. Do not spray without nozzle tip guard in place.
- Use caution when cleaning and changing nozzle tips. In the case where the nozzle tip clogs while spraying, follow the **Pressure Relief Procedure** for turning off the unit and relieving the pressure before removing the nozzle tip to clean.
- Do not leave the unit energized or under pressure while unattended. When the unit is not in use, turn off the unit and follow the **Pressure Relief Procedure** for turning off the unit.
- Check parts for signs of damage. Replace any damaged parts.
- This system is capable of producing 2000 psi. Use replacement parts or accessories that are rated a minimum of 2000 psi.
- Do not carry the tool with a finger on the trigger.
- Verify that all connections are secure before operating the unit.
- Know how to stop the unit and bleed pressure quickly. Be thoroughly familiar with the controls.

**EQUIPMENT MISUSE HAZARD**

Misuse can cause death or serious injury.

- Always wear appropriate gloves, eye protection, and a respirator or mask when painting.
- Do not operate or spray near children. Keep children away from equipment at all times.
- Do not overreach or stand on an unstable support. Keep effective footing and balance at all times.
- Stay alert and watch what you are doing.
- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Use only in dry locations. Do not expose to water or rain.
- Use in well-lit areas.

# ⚠WARNING

**BATTERY HAZARD**

The battery may leak, explode, cause burns, or cause an explosion if mishandled. Contents of an open battery can cause severe irritation and/or chemical burns. If on skin, wash with soap and water. If in eyes, flush with water for at least 15 minutes and seek immediate medical attention.

- Replace battery only in a well-ventilated area and away from flammable or combustible materials; including paints and solvents.
- When battery is not in use, keep it away from metal objects like keys, nails, screws or other metal objects that can short circuit the battery terminals.
- Do not throw into fire.
- Charge only with Graco-approved charger as listed in this manual.
- Do not store at temperatures below 32° or above 113° F (0° to 45° C).
- Do not use at temperatures below 40° or above 90° F (4° to 32° C).
- Do not expose battery to water or rain.
- Do not disassemble, crush, or penetrate the battery.
- Do not charge a battery that is cracked or damaged.
- Follow local ordinances and/or regulations for disposal.

**CHARGER ELECTRIC SHOCK, FIRE AND EXPLOSION HAZARD**

Improper setup or usage can cause electric shock, fire, and explosion.

- Charge only in a well-ventilated area and away from flammable or combustible materials, including paints and solvents.
- Do not charge on a combustible or flammable surface.
- Do not leave battery unattended while charging.
- Immediately unplug charger and remove battery when charger is complete.
- Charge only Graco batteries listed in this manual; other batteries may burst.
- Use only in dry locations. Do not expose to water or rain.
- Do not use a charger that is cracked or damaged.
- If the supply cord is damaged, replace the charger or cord, depending on model.
- Never force the battery into the charger.
- When operating a charger outdoors, always provide a dry location and use an extension cord suitable for outdoor use.
- Disconnect the charger from the outlet before cleaning.
- Ensure that the outside surface of the battery is clean and dry before plugging into the charger.
- Do not attempt to charge non-rechargeable batteries.
- Do not disassemble the charger. Take charger to authorized service center when service or repair is required.

**PRESSURIZED ALUMINUM PARTS HAZARD**

Use of fluids that are incompatible with aluminum in pressurized equipment can cause serious chemical reaction and equipment rupture. Failure to follow this warning can result in death, serious injury, or property damage.

- Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents.
- Many other fluids may contain chemicals that can react with aluminum. Contact your material supplier for compatibility.

**MOVING PARTS HAZARD**

Moving parts can pinch or amputate fingers and other body parts.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** in this manual. Disconnect power.

**TOXIC FLUID OR FUMES HAZARD**

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

- Read MSDS's to know the specific hazards of the fluids you are using.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.

**PERSONAL PROTECTIVE EQUIPMENT**

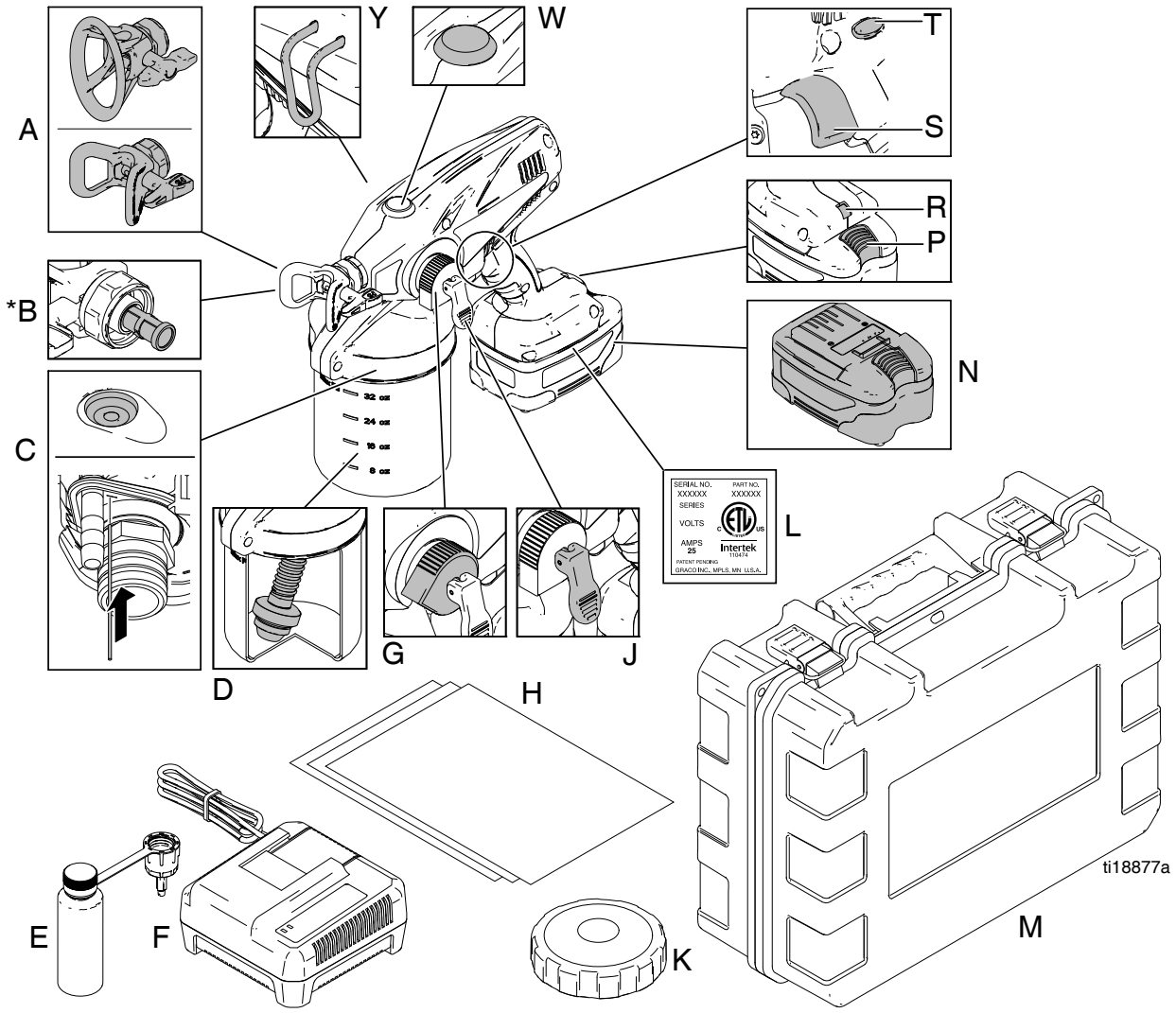
Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This protective equipment includes but is not limited to:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

**CALIFORNIA PROPOSITION 65**

This product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. Wash hands after handling.

# Component Identification




| | |
|---|---|
| A | Spray Tip/Guard Assembly |
| *B | Spray Tip Filter (Reverse Threaded) |
| C | Air Vent Valve |
| D | Flexible Suction Tube |
| E | Pump Armor Storage/Startup Tool |
| F | Battery Charger |
| G | Pressure Control Knob |
| H | Material Cup Liners (5 included) |
| J | Prime/Spray Valve |
| K | Material Cup Cover and Seal |

| | |
|---|---|
| L | Part Number = Model Number |
| M | Sprayer Case |
| N | Battery |
| P | Battery Release Button |
| R | Sprayer Status Indicator Light |
| S | Trigger |
| T | Trigger Lock |
| W | Outlet Valve Fitting Access Plug |
| Y | Sprayer Hook (Not available on all models) |

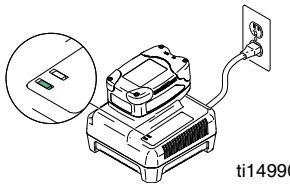
***NOTE:** Spray Tip filter is reverse-threaded. Turn left (or counter-clockwise) to tighten, turn right (or clockwise) to loosen.

# Charging the Battery

Replace and charge battery only in a well-ventilated area and away from flammable or combustible materials, including paints and solvents.

Batteries are initially 50% charged to provide optimum battery life and require charging before first use. It takes approximately 45 minutes to charge a dead battery to 80%, at which point it can be used. It will take approximately 75 minutes to fully charge a dead battery.

1. Place charger in a dry, well-ventilated area and away from flammable or combustible materials, including paints and solvents.
2. Plug charger into an electrical outlet and slide battery into charger as shown (light will turn on in 5 seconds).

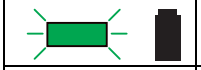
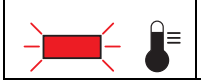



3. When battery becomes fully charged, immediately unplug the charger from the power supply and remove the battery from the charger.

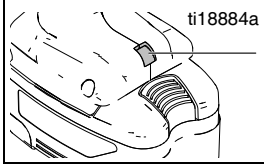
**NOTE:** The amount sprayed with each battery varies depending on material, spray tip size, battery charge, and battery temperature. One battery fully charged will spray up to one gallon. Amount sprayed will be less depending on spray tip size, material sprayed, life of battery, temperature, and other environmental factors.

## Charger Status Indicator Lights

**NOTE:** When the charger is plugged in, the charger status indicator lights will alternate between green and red several times before they turn off, indicating that the charger is ready to charge a battery.

| Label | Appearance | Description |
|---|---|---|
|  | Solid green light | Indicates a full charge. Battery can be used. |
| | Flashing green light | Battery is charging, indicates 80% charge.<br>Battery can be used. |
| | Flashing red light | Battery is charging, indicates less than 80% charge.<br>Do NOT use battery. |
|  | Solid red light | Battery is too hot or too cold to charge. Remove battery and allow to cool or warm up before charging. |

## Sprayer Status Indicator Light

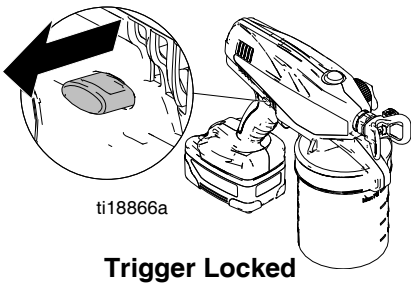
| Light* | Appearance | Description |
|---|---|---|
|  | No light | Normal operation. |
| | Solid red | Battery is low on power and needs to be charged, or battery is too cold and must warm up before spraying. |
| | Flashing red | Battery temperature is too high, or spray tip is clogged.<br>See **Troubleshooting**, page 27. |

***NOTE:** The sprayer status indicator light is only visible when sprayer trigger is engaged. You must **squeeze and hold the trigger** to see the sprayer status indicator.

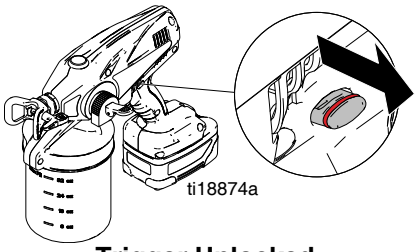
# Common Procedures

## Trigger Lock

Always engage the trigger lock when you stop spraying to prevent the sprayer from being triggered accidentally by hand, or if dropped or bumped.

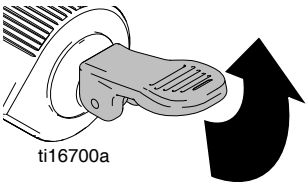



**Trigger Locked**

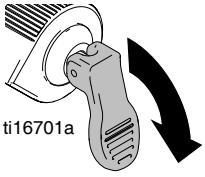



**Trigger Unlocked (red ring is visible)**

## Prime/Spray Valve




**UP position (For priming and releasing pump pressure)**




**DOWN position (Ready to spray)**

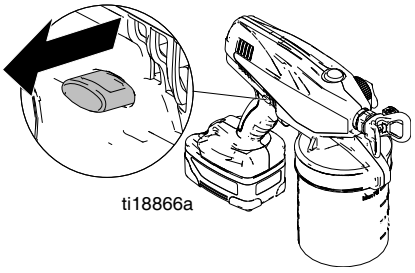
Follow the **Pressure Relief Procedure** whenever you see this symbol.

## Pressure Relief Procedure

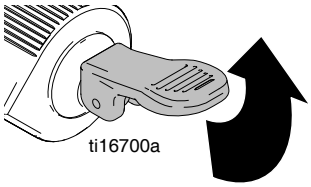
Do not operate or spray near children. Do not aim the sprayer at, or spray any person or animal. Keep hands and other body parts away from the discharge. For example, do not try to stop the paint flow with any part of the body.

This sprayer builds up an internal pressure of 2000 psi (14 MPa, 138 bar) during use. Follow this **Pressure Relief Procedure** whenever you stop spraying and before cleaning, checking, servicing, or transporting equipment to prevent serious injury.

1. Engage trigger lock.




2. Put prime/spray valve UP to release pressure.

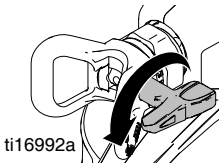


# Reversible Spray Tip

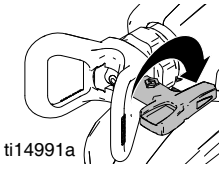
Always perform **Pressure Relief Procedure** before adjusting spray tip position.

In the event that particles or debris clog the spray tip, this sprayer is designed with a reversible spray tip that can be used to quickly and easily clear the particles and resume spraying as quickly as possible.

- Always point the reversible spray tip forward when spraying.
- When particles or debris get caught in the tip, it can be reversed to quickly clean the tip.
- See **Unclogging Spray/Tip Guard Assembly** (page 14) for detailed instructions.

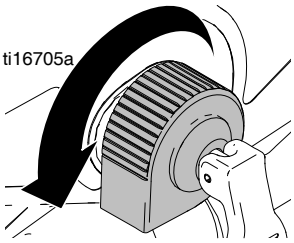



**Spray Tip Forward (SPRAY position)**

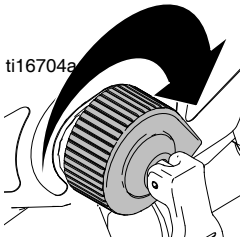



**Spray Tip Reversed (UNCLOG position)**

# Pressure Control Knob




**Minimum Pressure Setting**




**Maximum Pressure Setting**

- To reduce overspray, always spray at lowest pressure that results in an acceptable spray pattern.
- Spray test pattern and adjust pressure to get desired coverage.
- With some materials, if pressure is set too low, no material may spray out. Turn pressure control knob up.
- Thin materials sprayed at high pressure settings may cause the sprayer to enter an operational mode designed to protect it from overheating. This mode is noticeable by the sprayer sounding like it is slowing down and will result in a poor spray pattern. **To exit this mode, turn pressure control knob down to lowest pressure setting that results in an acceptable spray pattern.**
- If spraying in low pressure range, there may not be enough pressure to clear the plug. Turn pressure control knob up to clear the plug.

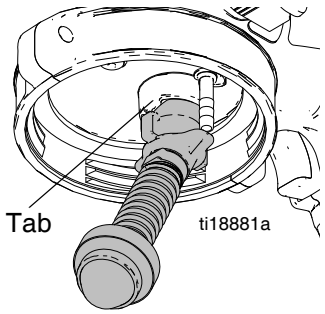
**NOTICE**

See **Choosing Pressure Control Knob Setting** on page 12 for recommendations on the setting for your job.

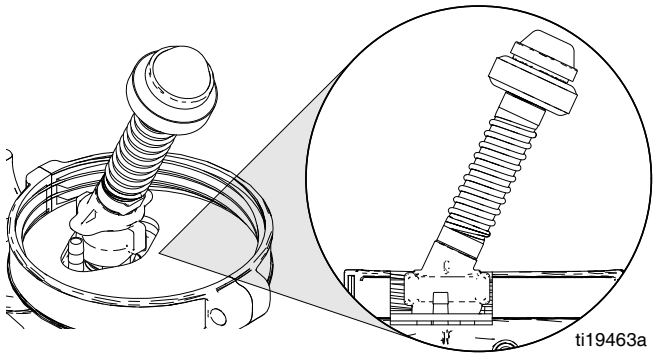
# Flexible Suction Tube

This sprayer comes with a flexible suction tube for multi-directional spraying without adjustment.

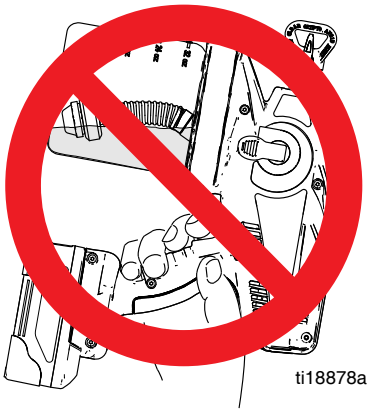
To ensure proper function of flexible suction tube, orient as shown. Make sure tab from sprayer is aligned with groove from flexible suction tube and firmly push into place.




**Model 16N660 only:** The flexible suction tube on these models does not have an alignment groove. Orient flexible suction tube screen end forward (away from trigger) as shown below and firmly push into place.




**NOTE:** If the sprayer is angled or tilted too far, the flexible suction tube will lose contact with the material and the sprayer will stop spraying.



# Sprayer Setup

**Use only water-based or oil-based (mineral spirit-type) materials with flash point greater than 100° F (38° C).** Do not use materials which state “FLAMMABLE” on the packaging. For more information about your material, request MSDS from distributor or retailer.

**Spraying certain materials may cause static build-up in the sprayer that can result in static shock to the user.** If this occurs, first ensure the material has a flash point greater than 100° F (38° C) and does not state that it is FLAMMABLE anywhere on the package. If still feeling a static shock, the material likely contains a non-mineral spirits fluid such as, but not limited to, xylene, toluene, or naphtha, which can build up static. Switch to an alternative material.

Use oil-based material outdoors or in a well-ventilated indoor area with a flow of fresh air.

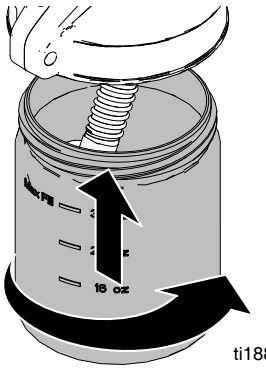
**Keep spray area well-ventilated.** Keep a good supply of fresh air moving through the area.

**NOTICE**

Your sprayer is **NOT** compatible with harsh cleaners such as chlorine bleach. Using these cleaners will cause damage to the sprayer.

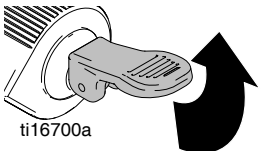
This sprayer arrives from the factory with a small amount of test material in the system. **It is important that you flush this material from the sprayer before using it for the first time:**

1. Fill material cup with water or compatible solvent, thread onto sprayer and hand tighten.

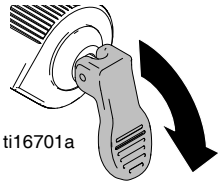


ti18871a

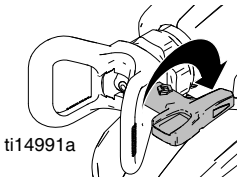
2. Put prime/spray valve to UP position, then hold trigger in for 10 seconds.

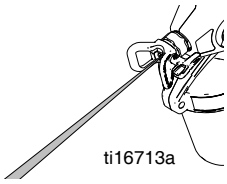

ti16700a

3. Put prime/spray valve DOWN to spray position.

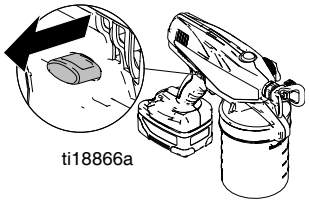

ti16701a

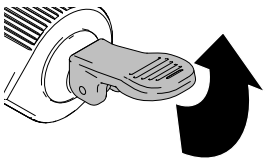
4. Reverse Spray Tip to UNCLOG position and trigger sprayer into a waste area for 10 seconds.


ti14991a

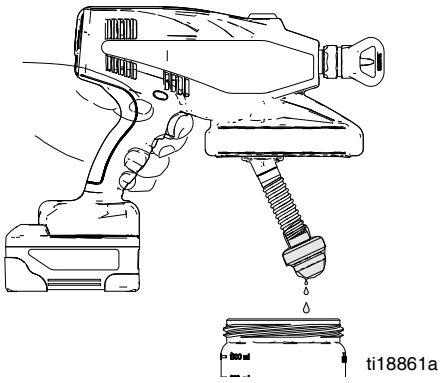

ti16713a

5. Engage trigger lock and put prime/spray valve UP to release pressure.


ti18866a


ti16700a

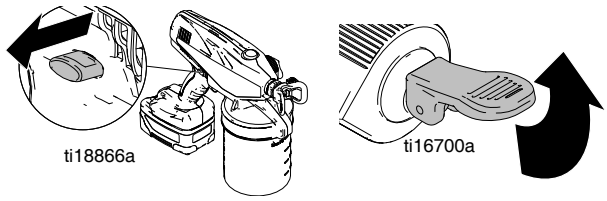
6. Unscrew and remove material cup.
7. Disengage trigger lock, hold sprayer slightly above material cup, and pull trigger to discharge fluid from pump.


ti18861a

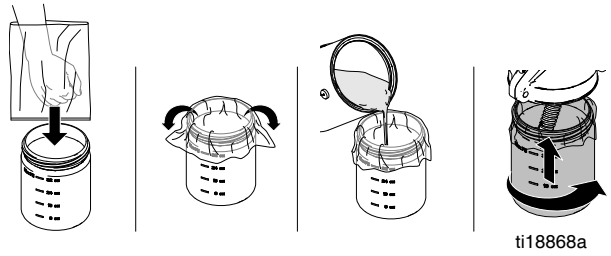
8. Discard material in cup.

# Starting a New Job (or Refilling the Material Cup)

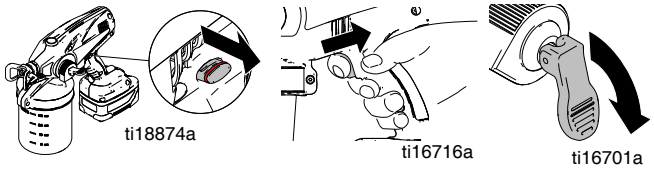
1. Engage trigger lock and put prime/spray valve UP to release pressure.



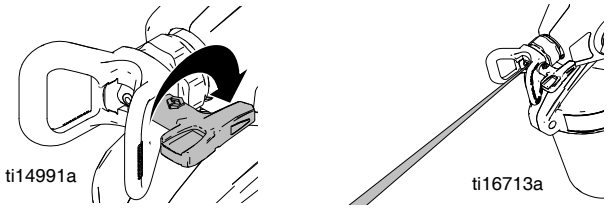

2. Install material cup liner, fill with material, and thread onto sprayer.



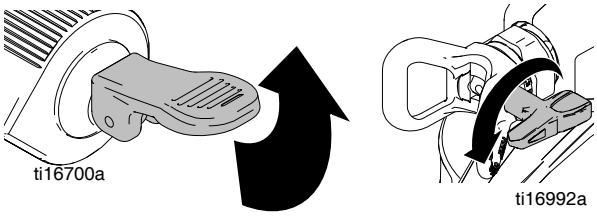

3. To fill sprayer with fluid, disengage trigger lock and trigger sprayer for 10 seconds. Then release trigger and put prime/spray valve DOWN to spray position.




4. Reverse spray tip to UNCLOG position, pull trigger and release.

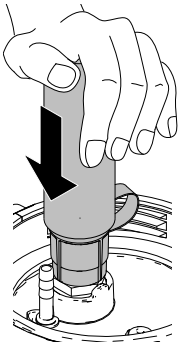



5. Put prime/spray valve UP to release pressure. Then rotate spray tip back to spray position.
   **NOTE:** Failure to perform this operation could result in poor spray pattern.



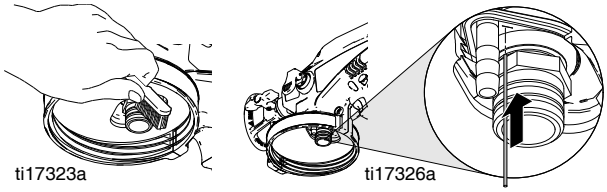

## If sprayer fails to prime, try one of the steps below:

1. Use the Pump Armor storage/startup tool to clean the inlet valve fitting. See **Storage**, page 17.

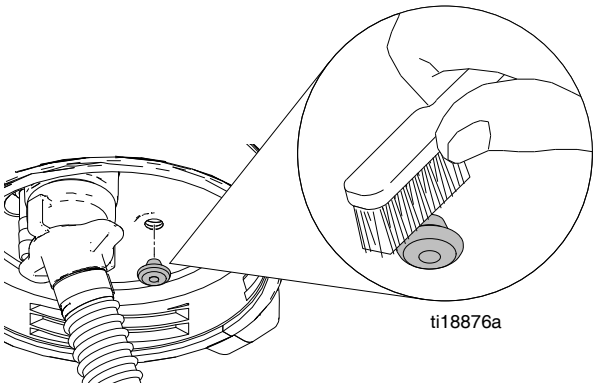


2. Clean air vent holes or the air vent valve, depending on model. See **Shutdown and Cleaning**, page 15.

   **Model 16N660:** Use a soft brush to clean the black rubber inlet seal. If air vent holes become clogged, use a paper clip to clean the holes.




   **For all other units:** Remove air vent valve, clean, and reinstall.

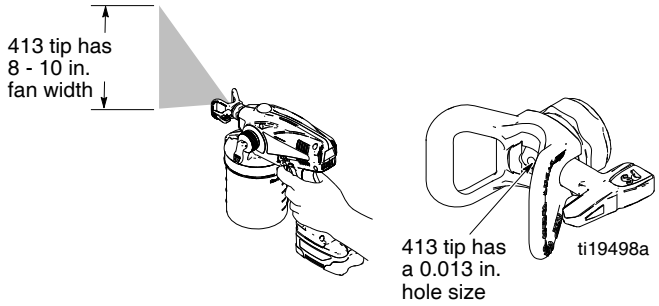


# Choosing the Correct Tip

## Understanding Tip Number

The last three digits of tip number (i.e.: XXX413) contains information about hole size and fan width on surface when gun is held 12 in. (30.5 cm) from surface being sprayed.

First digit when doubled = approximate fan width




Last two digits = tip hole size in thousands of an inch

**Example:** For a 6 - 8 in. (152 - 203 mm) fan width and a 0.015 in (0.38 mm) hole size, order part number PST315 or NAR315, depending on your sprayer model number.

## Selecting Tip Hole Size

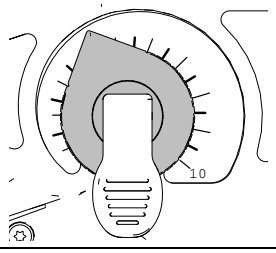
- Tips come in a variety of hole sizes for spraying a range of fluids. The sprayer includes a 0.015 in. (0.38 mm) tip for use in most spraying applications. Use the table below to determine the range of recommended tip hole sizes for each fluid type.
- Consider coating and surface to be sprayed. Make sure to use the best tip hole size for the coating and best fan width for that surface.
- Tip hole size controls flow rate - the amount of paint that comes out of the gun.

**HINTS:**

- As you spray, the tip wears and enlarges. Starting with a tip hole size smaller than the maximum will allow you to spray within the rated flow capacity of the sprayer.
- Tips wear with use and abrasive paint and need periodic replacement.
- Do not spray with worn spray tips. Poor spray pattern quality will result.

## Choosing Pressure Control Knob Setting

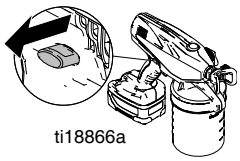
Recommendations of a starting point for determining the best set point for your sprayer and particular coating are shown in the table below.

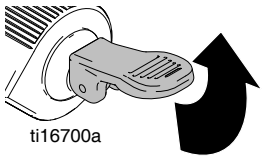
| Tip Hole Size | Thinner ◄ Coatings ► Thicker | | | | |
|---|---|---|---|---|---|
| | **Stains** | **Enamels** | **Primers** | **Interior Paints** | **Exterior Paints** |
| .011 in. (0.28 mm) | ✓ | | | | |
| .013 in. (0.33 mm) | ✓ | ✓ | ✓ | ✓ | |
| .015 in. (0.38 mm) | | ✓ | ✓ | ✓ | ✓ |
| .017 in. (0.43 mm) | | | ✓ | ✓ | ✓ |
| **Pressure Control Knob Setting Number**  | 0 - 2 | 3 - 7 | 4 - 10 | 4 - 10 | 4 - 10 |

# Install Spray Tip/Guard Assembly (if not installed)

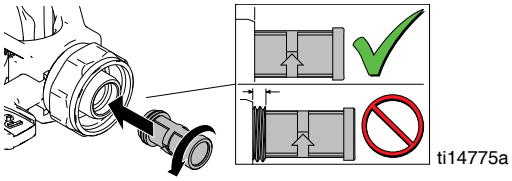
This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the **Pressure Relief Procedure** when you stop spraying and before cleaning, checking, or servicing the equipment.

1. Engage trigger lock and put prime/spray valve UP to release pressure.




2. Install filter to spray/tip guard assembly.
**NOTE:** Spray tip filter is reverse-threaded. **Turn left** (or counter-clockwise) to install. **Turn right** (or clockwise) to remove.

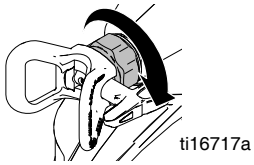



**NOTICE**

Make sure spray tip filter is completely screwed into the spray/tip guard assembly to avoid damage to the filter. Do not use a damaged filter or poor sprayer performance may result.

Do NOT place hands in front of tip.

3. Screw spray/tip guard assembly onto sprayer. Tighten retaining nut until completely engaged with sprayer. Do not overtighten nut.



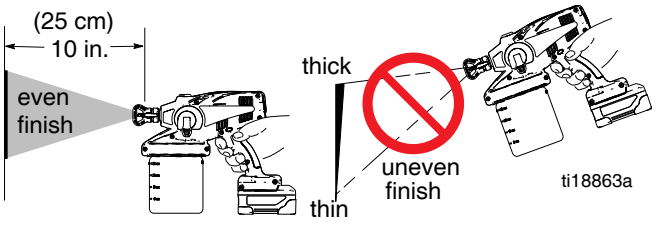

**NOTICE**

The spray tip is permanently attached to the spray/tip guard assembly. Removal will result in damage.

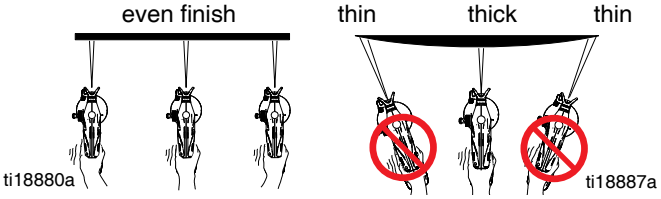
# Getting Started with Basic Techniques

*Use a piece of scrap cardboard to practice these basic spraying techniques before you begin spraying the surface.*

- Hold sprayer 10 in. (25 cm) from surface and aim straight at surface. Tilting sprayer to direct spray angle causes an uneven finish.



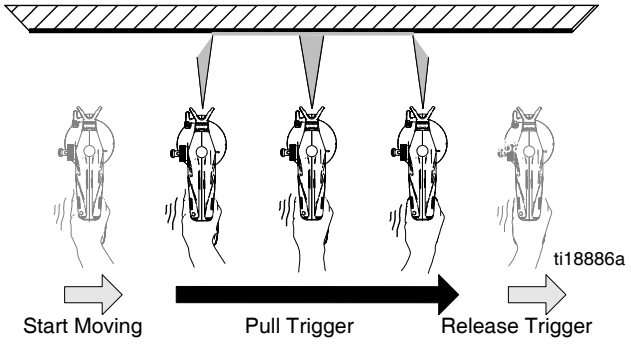

- Flex wrist to keep sprayer pointed straight. Fanning sprayer to direct spray at angle causes uneven finish.




**NOTE:** How fast you move the sprayer will affect spray application. If material is pulsating, you are moving too fast. If material drips, you are moving too slow. See **Troubleshooting**, page 27.

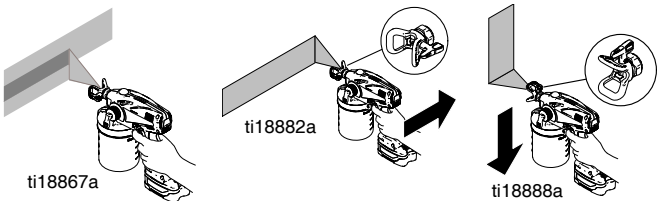
# Triggering Sprayer

Pull trigger after starting stroke. Release trigger before end of stroke. Sprayer must be moving when trigger is pulled and released.



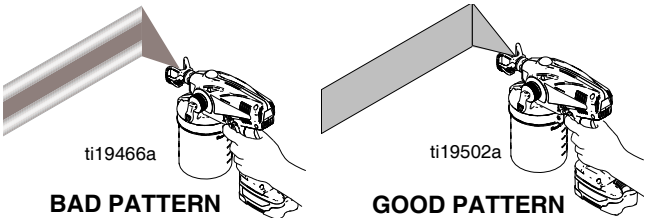
## Aiming Sprayer

Aim sprayer at bottom edge of previous stroke, overlapping each stroke by half.

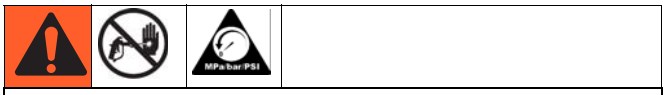



## Spray Pattern Quality

A good spray pattern is evenly distributed as it hits the surface. Adjust pressure control knob so pressure is just high enough to spray without “tails”. If tails persist at highest pressure setting, a smaller tip is needed to spray the material or material may need to be thinned.

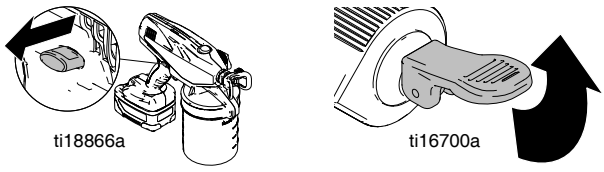



## Unclogging Spray Tip/Guard Assembly

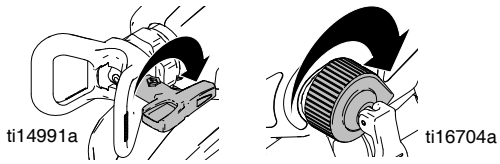


Do not operate or spray near children. Do not aim the sprayer at, or spray any person or animal. Keep hands and other body parts away from discharge. For example, do not try to stop leaks with any part of the body.

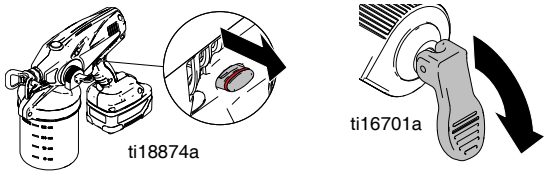
1. To unclog spray tip clog, engage trigger lock and put prime/spray valve UP to release pressure.



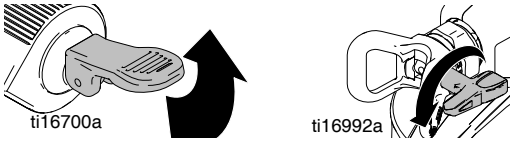

2. Reverse spray tip to UNCLOG position. Turn pressure control knob to maximum pressure setting.



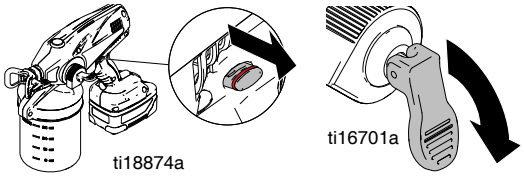

3. Aim sprayer at waste area, disengage trigger lock, and put prime/spray valve DOWN to spray position. Pull trigger to clear clog.



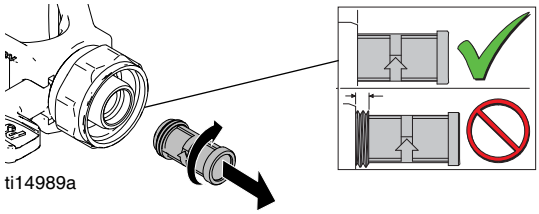

4. Engage trigger lock. Put prime/spray valve UP to release pressure and rotate spray tip back to SPRAY position.




5. Disengage trigger lock, put prime/spray valve DOWN to spray position, and resume spraying.




6. If spray tip is still clogged, you may have to repeat steps 1 - 5 and rotate the spray tip from SPRAY to UNCLOG several times. Repeat step 1 to release pressure, remove and clean spray tip filter, or replace with new spray tip/guard assembly.

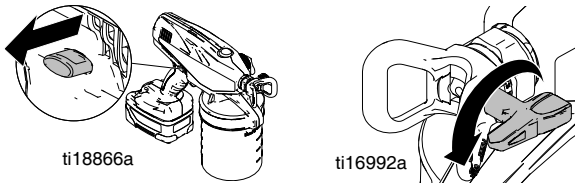



**NOTE:** Spray tip filter assembly is reverse-threaded:
**Turn left** (or counter-clockwise) to install.
**Turn right** (or clockwise) to remove.

**NOTICE**

Make sure spray tip filter is completely screwed into the spray/tip guard assembly to avoid damage to the filter. Do not use a damaged filter or poor sprayer performance may result.

7. When obstruction is cleared, engage trigger lock and rotate spray tip back to SPRAY position.



# Shutdown and Cleaning

**NOTICE**

Failure to properly clean sprayer after each use will result in hardened materials, damage to the sprayer, and the warranty will no longer be valid. Do not store solvents other than mineral spirits in sprayer. Always flush with Graco Pump Armor prior to storage.

## Flushing Sprayer

**Use only water-based or mineral spirit-type materials with flash point greater than 100° F (38° C).** Do not use materials which state “FLAMMABLE” on the packaging. For more information about your material, request MSDS from distributor or retailer.

**Spraying certain materials may cause static build-up in the sprayer that can result in static shock to the user.** If this occurs, first ensure the material has a flash point greater than 100° F (38° C) and does not state that it is FLAMMABLE anywhere on the package. If still feeling a static shock, the material likely contains a non-mineral spirits fluid such as, but not limited to, xylene, toluene, or naphtha, which can build up static. Switch to an alternative material.

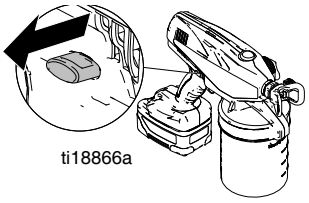
Use oil-based material outdoors or in a well-ventilated indoor area with a flow of fresh air.

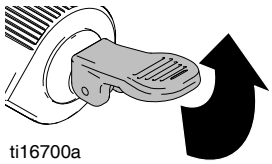
**Keep spray area well-ventilated.** Keep a good supply of fresh air moving through the area.

**NOTICE**

***Protect the internal parts of this sprayer from water.*** Do not submerge the sprayer in cleaning fluid. Openings in shroud allow cooling of mechanical parts and electronics inside. If water or cleaning fluid gets into these openings, the sprayer could malfunction or become permanently damaged.

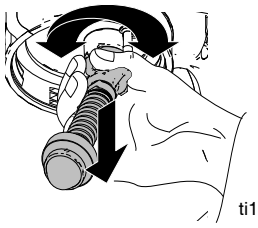
1. Engage trigger lock and pull prime/spray valve UP to release pressure.




2. Remove material cup and return excess material to proper container. If used, properly dispose the material cup liner.

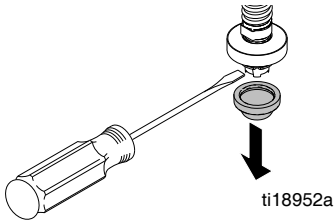
3. Remove flexible suction tube as shown below.



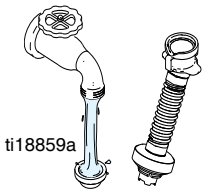

**NOTICE**

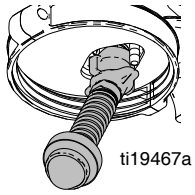
When removing flexible suction tube from sprayer, make sure to pull directly on top fitting of flexible suction tube. Flexible suction tube will become damaged if pulled from bottom or on flexible portion.

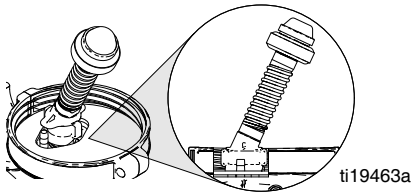
4. Use screwdriver to pry suction tube strainer from flexible suction tube.



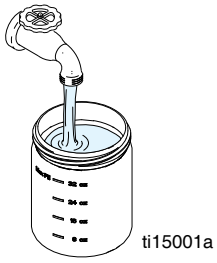

5. Clean flexible suction tube and suction tube strainer with water (or flushing fluid) and a brush every time you flush the sprayer. Reconnect flexible suction tube and suction tube strainer and orient as shown.



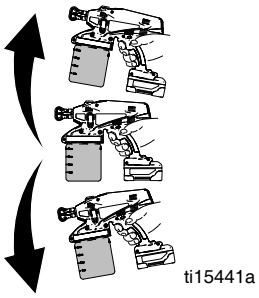



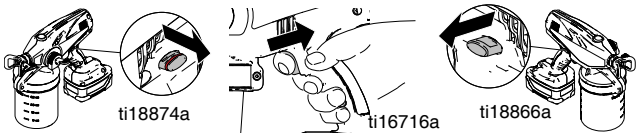

6. Clean material cup if not using a liner, and fill with water or appropriate flushing fluid.



7. Reconnect material cup and shake sprayer to move clean water around and clean all areas inside of material cup.

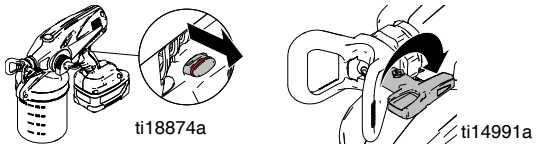



8. Disengage trigger lock and trigger sprayer for approximately 15 seconds. Engage trigger lock.

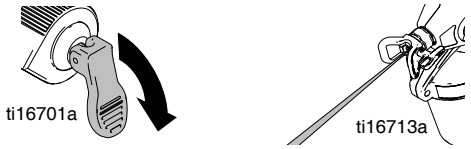



9. Discard contaminated fluid and refill with appropriate flushing fluid.

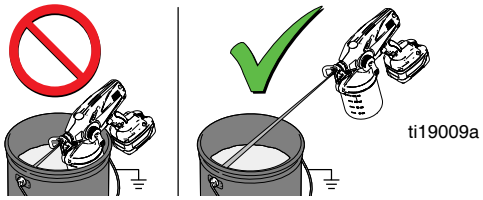
10. Disengage trigger lock, reverse Spray Tip to UNCLOG position, and pull trigger for 5 seconds to prime sprayer.




11. Put prime/spray valve DOWN to spray position. Trigger sprayer into waste area until no paint appears in water or flushing fluid.

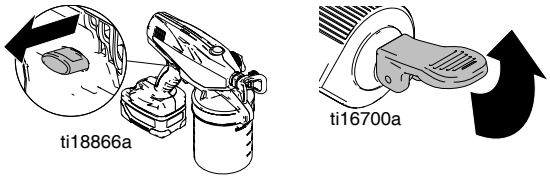



To avoid serious injury or damage to equipment, do not expose the sprayer electronics to flushing solvents. Keep sprayer **at least 10 in. (25 cm)** above the rim of the container when flushing.




Keep spray area well-ventilated. Keep a good supply of fresh air moving through the area. When flushing with solvents, always ground the sprayer and waste container.

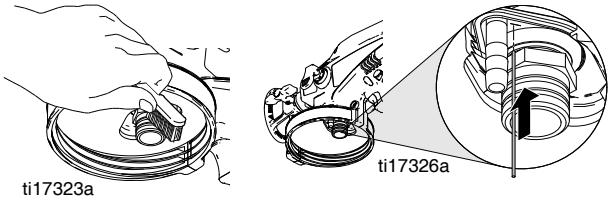
12. Engage trigger lock and put prime/spray valve UP to release pressure.



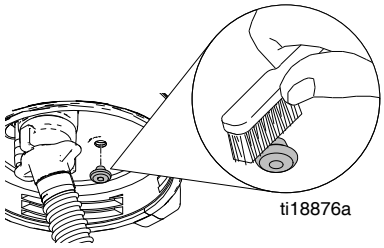

**NOTE:** Air vent holes or the air vent valve (as your model is equipped) allow air to flow into the material cup while spraying to prevent loss of fluid flow.

13. Remove material cup and discard used fluid.

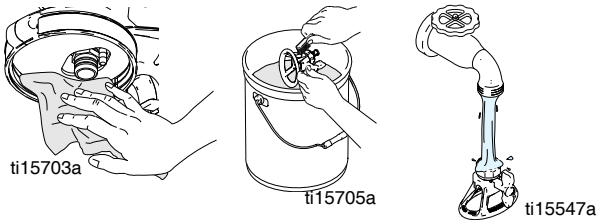
**For model 16N660:** Use a soft brush to clean the black rubber inlet seal. If vent holes become clogged, use a paper clip to clear the holes.




**For all other units:** Remove air vent valve, clean, and reinstall.




14. Remove spray/tip guard assembly and clean with water or flushing fluid. A soft brush can be used to loosen and remove dried material if needed.




**NOTICE**

The spray tip is permanently attached to the guard. Removing the spray tip from the guard will result in damage to the spray tip assembly. Do not store spray/tip guard assembly or flexible suction tube in solvent other than mineral spirits. Damage to parts may occur.

## Cleaning Sprayer Exterior

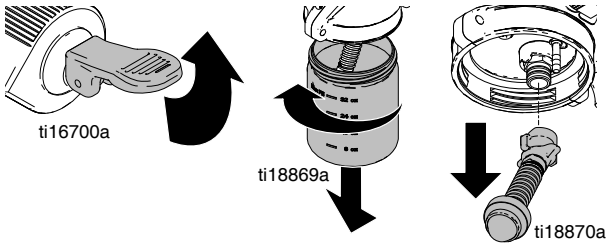
Wipe paint off outside of sprayer using a soft cloth moistened with water or flushing fluid. Use only water-based or oil-based (mineral spirit-type) materials with flash point greater than 100° F (38° C). Do NOT submerge the sprayer.

# Storage

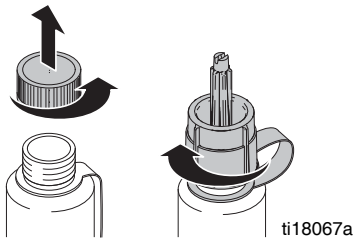
**NOTICE**

Failure to store sprayer with Pump Armor will result in operational problems the next time you spray. Always circulate Pump Armor through the sprayer after cleaning. **Water or solvents other than mineral spirits left in the sprayer will corrode and damage the pump.**

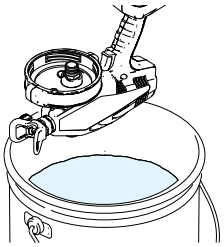
1. Lift prime/spray valve UP to the prime position. Remove material cup and flexible suction tube.



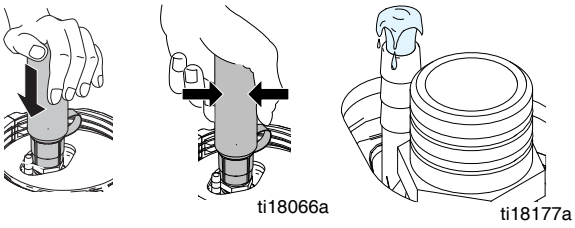

2. Remove child-resistent cap. Thread nozzle onto Pump Armor bottle. **NOTE:** For best results, make sure bottle is full.



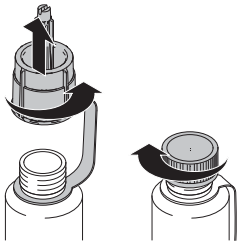

3. Hold sprayer upside-down over a waste container.



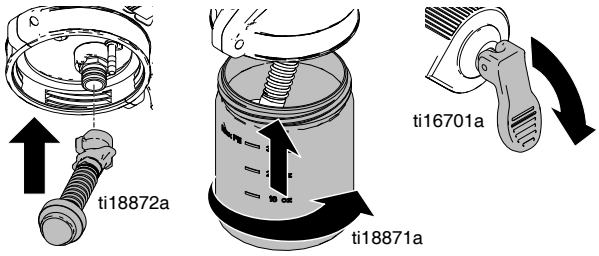

4. Insert Pump Armor nozzle over material inlet and push firmly until it stops. Squeeze cleaning bottle until Pump Armor flows out drain tube.




5. Remove Pump Armor nozzle and replace child-resistent cap and tighten securely for storage.

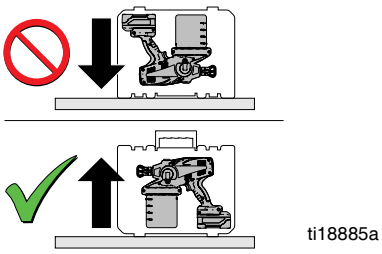



6. Attach flexible suction tube and material cup. Push valve DOWN to spray position.




7. Recharge battery to full charge before storage. See **Charging the Battery**, page 6.

8. Store sprayer indoors in a cool, dry place. Store in an **upright position only**. Never store sprayer with material in the cup.



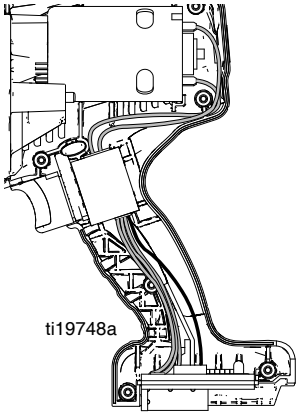
# General Service

**See manual 3A1884 (available at www.graco.com) for complete instructions on properly servicing your sprayer.**

If you have opened the sprayer clamshell and do not have access to manual 3A1884, follow the instructions below to reduce the risk of errors when assembling the sprayer clamshell.

## Wiring

Align switch in enclosure, install control board, and route wires as shown below. **NOTE:** Make sure wires will not be pinched when enclosure halves are put together.




**Cordless models**

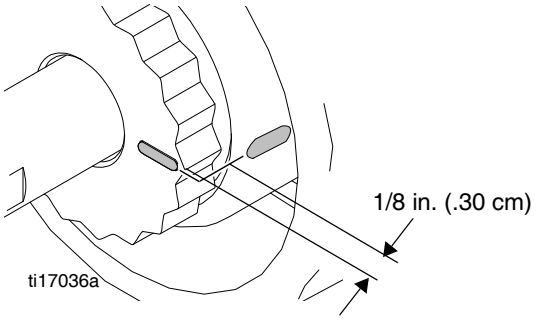
## Pressure Control Knob

1. Use the pressure control knob as a tool to rotate retainer fully clockwise (there should be no gap between retainer teeth and metal valve housing).

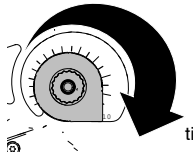
   **NOTE:** You may occasionally have to remove, rotate, and reposition pressure control knob due to stop feature molded into back of knob.

2. Rotate retainer back (counter-clockwise) until the first instance that the line and mark are aligned.

3. The valve retainer should now protrude approximately 1/8 in. (.30 cm) out from metal valve housing. Your prime/spray valve is now calibrated.

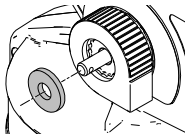



4. Position pressure control knob in fully clockwise position and press firmly onto retainer.

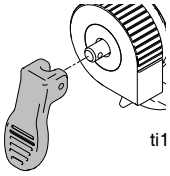



   **NOTE:** You may have to rotate pressure control knob slightly counter-clockwise to fully engage pressure control knob with retainer.

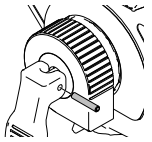
5. Install washer onto pressure control knob.




6. Install valve handle onto stem.




7. Insert pin into valve handle. Use pliers to press pin into hole.




   **NOTE:** If pin does not assemble, repeat steps 3 - 6 to ensure pressure control is fully engaged with retainer.

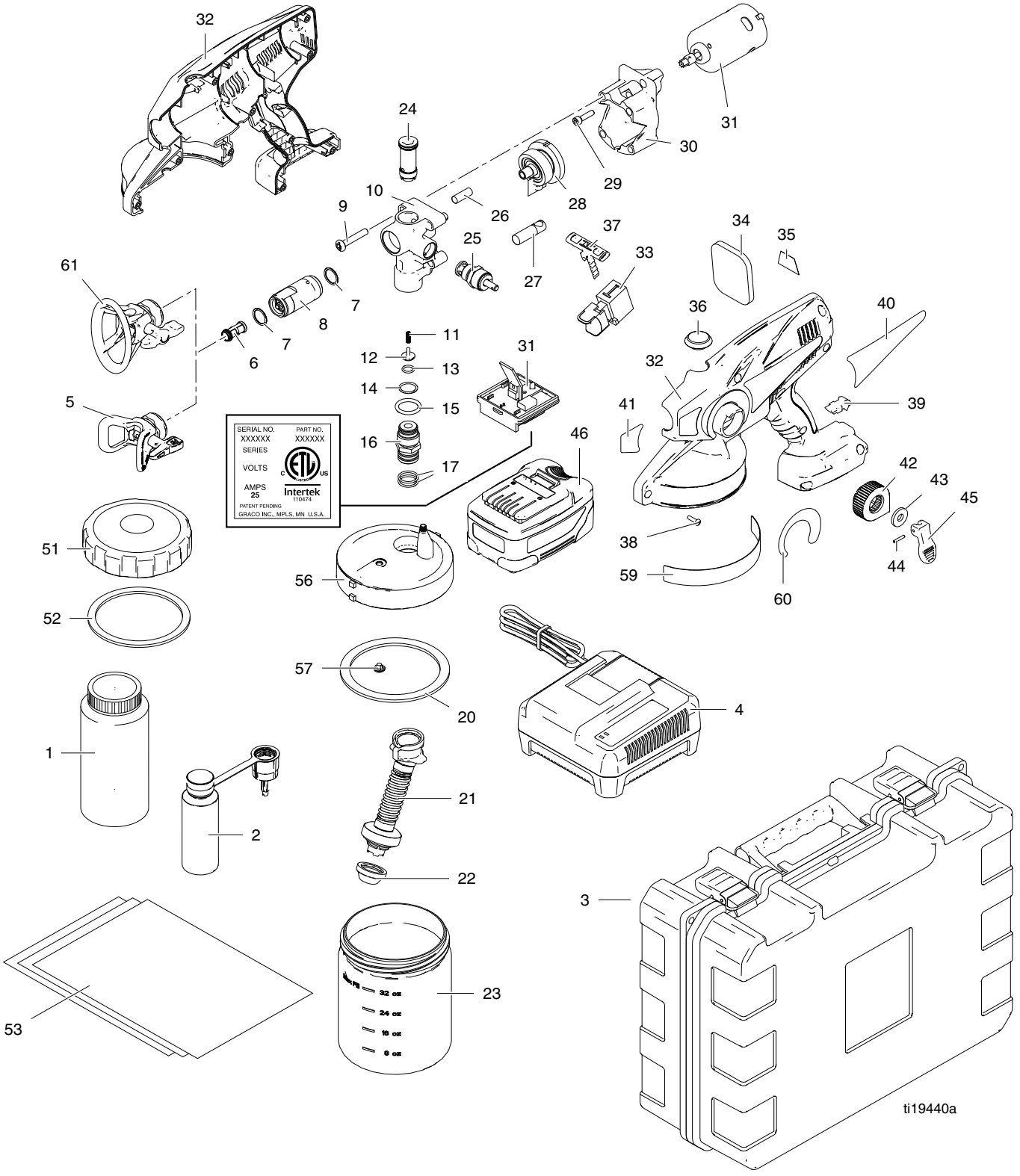
### IMPORTANT!

After assembly is complete, perform the following steps to verify proper operation. If sprayer fails one of the steps, repeat **Pressure Control Knob** procedure.

- Verify proper trigger lock operation. Slide trigger lock into “locked” and “unlocked” position and pull trigger. Trigger should not move in locked position and sprayer should run in unlocked position.
- Visually inspect for gaps between enclosure halves. A gap larger than 1/32 in. could be caused by a pinched wire. If disassembly and inspection indicates that no wire has been pinched, carefully reassemble and repeat verification steps.
- **Cordless Sprayers:** Verify that battery freely slides onto sprayer terminals and is locked when fully engaged.
- Verify belt hook operation (if applicable) by sliding hook completely out and back inside.
- Fill material cup with water and verify unit primes and sprays. Follow setup instructions in sprayer operation manual for proper priming and spraying procedure.
- Rotate pressure control knob to make sure it can rotate fully in both directions.

# Replacement Parts

## Models 16M886, 16N657, 24R747



# Parts List - Models 16N657, 16M886, 24R747

| Ref. | If you have this model sprayer (model number is the same as the part number, which is between the battery and the sprayer) | Order Part Number: | Description |
|---|---|---|---|
| | Model 16N657, 24R747 | 262842 | Sprayer Replacement Kit: includes parts 2, 7-20, 24-45, 56, 57, 59, 60 |
| | Model 16M886 | 262843 | Sprayer Replacement Kit: includes parts 2, 7-20, 24-45, 56, 57, 59, 60 |
| | | | |
| 1 | All models | 243103 | Pump Armor (32 oz) |
| 2 | All models | 16M816 | Startup/Storage Kit |
| 3 | All models | 16P458 | Storage Case |
| 4 | All models | 16D559 | Battery Charger |
| 5 | Model 16M886 | PST211 | 211 Spray Tip/Guard Assembly |
| | Model 16M886 | PST213 | 213 Spray Tip/Guard Assembly |
| | Model 16M886 | PST315 | 315 Spray Tip/Guard Assembly |
| | Model 16M886 | PST411 | 411 Spray Tip/Guard Assembly |
| | Model 16M886 | PST413 | 413 Spray Tip/Guard Assembly |
| | Model 16M886 | PST515 | 515 Spray Tip/Guard Assembly |
| | Model 16M886 | PST517 | 517 Spray Tip/Guard Assembly |
| 6 | All models | 24E376 | **1 pack** Spray Tip Filter |
| | All models | 24F039 | **3 pack** Spray Tip Filter |
| 7 | All models | 108195 | Needle Assembly O-ring |
| 8 | Model 16M886 | 262437 | Needle Assembly Kit: includes parts 7 (qty. 2), 8 |
| | Model 16N657, 24R747 | 262438 | Needle Assembly Kit: includes parts 7 (qty. 2), 8 |
| 9 | All models | 115478 | Screw |
| 10 | All models | 16M865 | **Complete Pump Assembly** w/Adjustable Prime/Spray Valve: includes parts 10, 11-17, 24-28, 44 |
| | All models | 16M868 | **Pump Housing Only**: includes parts 10, 26, 27, 44 |
| 11 | All models | 262602 | Inlet valve Repair Kit; includes 11, 12, 13 |
| 12 | All models | 262602 | Inlet valve Repair Kit; includes 11, 12, 13 |
| 13 | All models | 262602 | Inlet valve Repair Kit; includes 11, 12, 13 |
| 14 | All models | 109576 | O-ring |
| 15 | All models | 119790 | O-ring |
| 16 | All models | 16P151 | Inlet/Outlet Valve Repair Kit: includes parts 11-17, 24 |
| 17 | All models | 106553 | Suction Tube O-ring |
| 20 | All models | 16J731 | Sprayer Cup Seal |
| 21 | All models | 16P121 | Flexible Suction Tube Kit: includes parts 17 (qty. 2), 21, 22 |
| 22 | All models | 16N522 | Flexible Suction Tube Strainer |
| 23 | All models | 16D560 | **32 oz** Material Cup: includes parts 23, 51, 52 |
| | | 16D561 | **48 oz** Material Cup: includes parts 23, 51, 52 |
| 24 | All models | 16P151 | Inlet/Outlet Valve Repair Kit: includes parts 11-17, 24 |
| 25 | All models | 16M873 | Adjustable Prime/Spray Valve Repair Kit: includes 25, 42-45 |
| 26 | All models | 16M865 | **Complete Pump Assembly** w/Adjustable Prime/Spray Valve: includes parts 10, 11-17, 24-28, 44 |
| | All models | 16M868 | **Pump Housing Only**: includes parts 10, 26, 27, 44 |

*(Parts List continues on next page)*

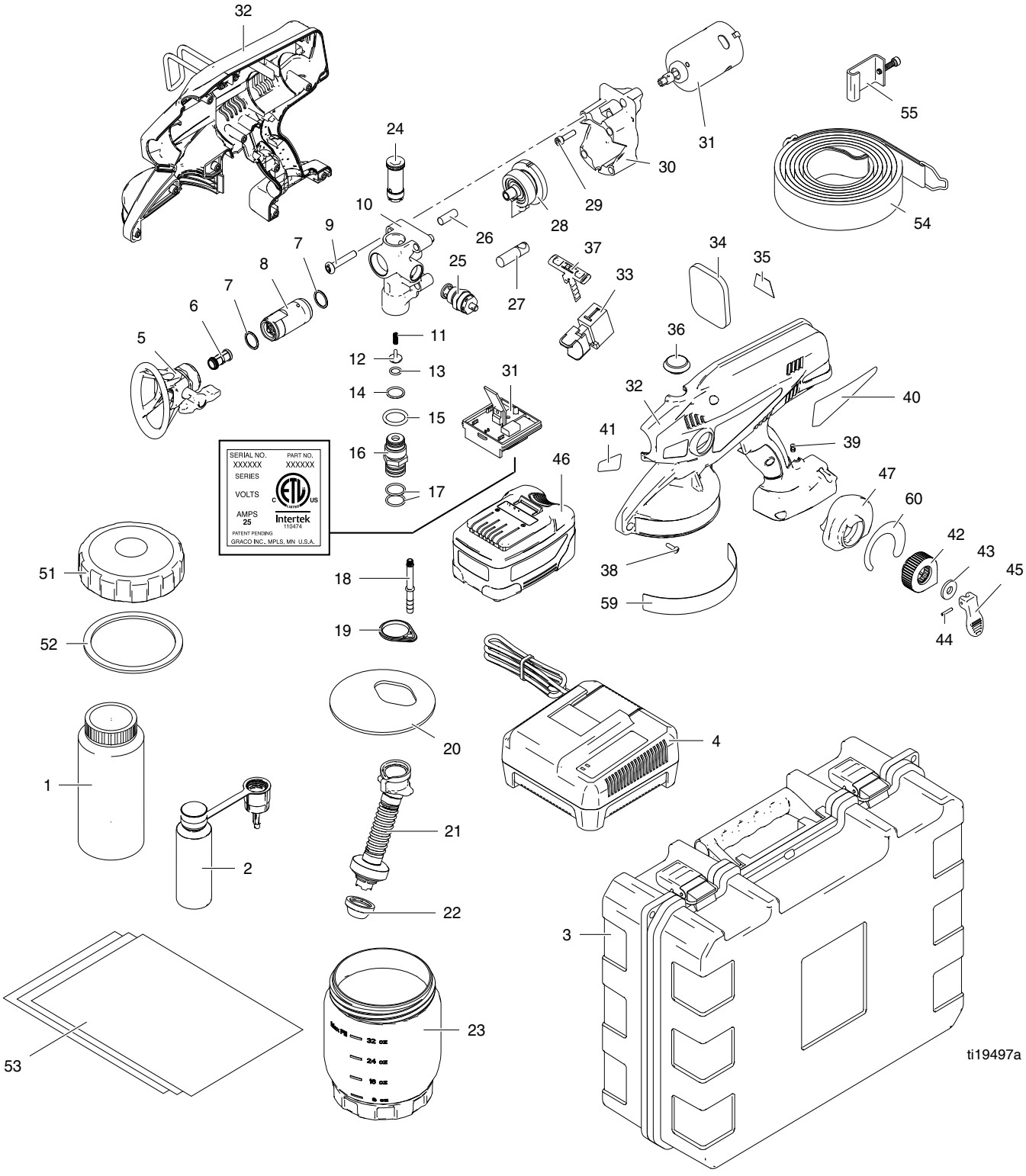
# Parts List - Models 16N657, 16M886, 24R747(Continued)

| Ref. | If you have this model sprayer (model number is the same as the part number, which is between the battery and the sprayer) | Order Part Number: | Description |
|---|---|---|---|
| 27 | All models | 16M865 | **Complete Pump Assembly** w/Adjustable Prime/Spray Valve: includes parts 10, 11-17, 24-28, 44 |
| | All models | 16M868 | **Pump Housing Only**: includes parts 10, 26, 27, 44 |
| 28 | All models | 16M863 | Reciprocator Assembly Kit: includes parts 28, 44 |
| 29 | All models | 108326 | Motor Mount Screw |
| 30 | All models | 16M924 | Drive Housing Assembly Kit: includes parts 9 (qty. 4), 29 (qty. 2), 30, 44 |
| 31 | All models | 16M861 | Motor/Control Board Kit: includes parts 29, 31, 33, 34, 44 |
| 32 | All models | 16P461 | Enclosure Replacement Kit: includes parts 32, 34-37, 38 (qty. 10), 39, 44, 55, 57 |
| 33 | All models | 16N928 | Switch Kit: includes parts 33, 44 |
| 34 | All models | 16P461 | Enclosure Replacement Kit: includes parts 32, 34-37, 38 (qty. 10), 39, 44, 55, 57 |
| 35 | All models | 16E859 | Made in USA Label |
| 36 | All models | 16C936 | Outlet Valve Access Plug |
| 37 | All models | 16M844 | Lock, trigger w/ slide |
| 38 | All models | 119236 | Enclosure Screw |
| 39 | All models | 16P461 | Enclosure Replacement Kit: includes parts 32, 34-37, 38 (qty. 10), 39, 44, 55, 57 |
| 40 | Model 16M886 | 16N556 | Side Brand Label |
| | Model 16N657 | 16P161 | Side Brand Label |
| | Model 24R747 | 16V496 | Side Brand Label |
| 41 | All models | 16R890 | Front Brand Label |
| 42 | All models | 16M873 | Adjustable Prime/Spray Valve Repair Kit: includes parts 25, 42-45 |
| 43 | All models | 16M873 | Adjustable Prime/Spray Valve Repair Kit: includes parts 25, 42-45 |
| 44 | All models | 119956 | Pin |
| 45 | All models | 262604 | Prime Valve Handle: includes parts 44, 45 |
| 46 | All models | 16D558 | Battery |
| 51 | All models | 24D425 | Material Cup Cover: includes parts 51, 52 |
| 52 | All models | 16C650 | Seal for Material Cup |
| 53 | All models | 16D562 | Cup Liner Replacement (10 pack) |
| 56 | All models | 16P461 | Enclosure Replacement Kit: includes parts 32, 34-38, 39 (qty. 10), 44 |
| 57 | All models | 16M890 | Air Vent Valve |
| 59 | All models | 16R891 | Cup Lip Brand Label |
| 60 | All models | 16R889 | Pressure Control Label |
| 61 | Model 16N657, 24R747 | NAR311 | 311 Spray Tip/Guard Assembly |
| | Model 16N657, 24R747 | NAR315 | 315 Spray Tip/Guard Assembly |
| | Model 16N657, 24R747 | XWD515 | 515 Spray Tip/Guard Assembly |
| | Model 16N657, 24R747 | XWD517 | 517 Spray Tip/Guard Assembly |
| Not Shown | | ▲16P459 | Warning Labels Replacement Kits ENG/FRE/SPA |
| | | | |

▲ *Replacement Danger and Warning labels, tags, and cards (Not Shown) are available at no cost.*

# Replacement Parts

## Model 16N660



# Parts List - Model 16N660

| Ref. | Order Part Number: | Description |
|---|---|---|
| | 262844 | Sprayer Replacement Kit: includes parts 2, 7-20, 24-45, 47, 56, 57, 59, 60 |
| | | |
| 1 | 243103 | Pump Armor (32 oz) |
| 2 | 16M816 | Startup/Storage Kit |
| 3 | 24F042 | Storage Case |
| 4 | 16D559 | Battery Charger |
| 5 | NAR311 | 311 Spray Tip/Guard Assembly |
| | NAR315 | 315 Spray Tip/Guard Assembly |
| | XWD515 | 515 Spray Tip/Guard Assembly |
| | XWD517 | 517 Spray Tip/Guard Assembly |
| 6 | 24E376 | **1 pack** Spray Tip Filter |
| | 24F039 | **3 pack** Spray Tip Filter |
| 7 | 108195 | Needle Assembly O-ring |
| 8 | 262438 | Needle Assembly Kit: includes parts 7 (qty. 2), 8 |
| 9 | 115478 | Screw |
| 10 | 16P050 | **Complete Pump Assembly** w/Adjustable Prime/Spray Valve: includes parts 10, 11-17, 20, 24-28, 44, 55 |
| | 16T477 | **Pump Housing Only**: includes parts 10, 20, 26, 27, 44, 55 |
| 11 | 262602 | Inlet valve Repair Kit; includes 11, 12, 13 |
| 12 | 262602 | Inlet valve Repair Kit; includes 11, 12, 13 |
| 13 | 262602 | Inlet valve Repair Kit; includes 11, 12, 13 |
| 14 | 109576 | O-ring |
| 15 | 119790 | O-ring |
| 16 | 16P151 | Inlet/Outlet Valve Repair Kit: includes parts 11-17, 24 |
| 17 | 106553 | Suction Tube O-ring |
| 18 | 16P460 | Enclosure Replacement Kit: includes parts 18-20, 32, 34-37, 38 (qty. 10) 39, 44 |
| 19 | 16P460 | Enclosure Replacement Kit: includes parts 18-20, 32, 34-37, 38 (qty. 10) 39, 44 |
| 20 | 16E403 | Sprayer Cup Seal |
| 21 | 16P121 | Flexible Suction Tube Kit: includes parts 17 (qty. 2), 21, 22 |
| 22 | 16N522 | Flexible Suction Tube Strainer |
| 23 | 24E374 | **32 oz** Material Cup: includes parts 23, 51, 52 |
| | 24E375 | **48 oz** Material Cup: includes parts 23, 51, 52 |
| 24 | 16P151 | Inlet/Outlet Valve Repair Kit: includes parts 11-17, 24 |
| 25 | 16M873 | Adjustable Prime/Spray Valve Repair Kit: includes 25, 42-45 |
| 26 | 16P050 | **Complete Pump Assembly** w/Adjustable Prime/Spray Valve: includes parts 10, 11-17, 20, 24-28, 44, 55 |
| | 16T477 | **Pump Housing Only**: includes parts 10, 20, 26, 27, 44, 55 |
| 27 | 16P050 | **Complete Pump Assembly** w/Adjustable Prime/Spray Valve: includes parts 10, 11-17, 20, 24-28, 44, 55 |
| | 16T477 | **Pump Housing Only**: includes parts 10, 20, 26, 27, 44, 55 |

*(Parts List continues on next page)*

# Parts List - Models 16N660 (Continued)

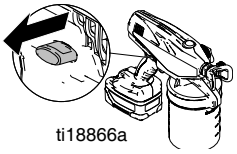
| Ref. | Order Part Number: | Description |
|---|---|---|
| 28 | 16P051 | Reciprocator Assembly Kit: includes parts 20, 28, 44, 55 |
| 29 | 114380 | Motor Mount Screw |
| 30 | 16P052 | Drive Housing Assembly Kit: includes parts 9 (qty. 4), 20, 29 (qty. 2), 30, 44, 55 |
| 31 | 16P049 | Motor/Control Board Kit: includes parts 20, 29 (qty. 2), 31, 33, 34, 44, 55 |
| 32 | 16P460 | Enclosure Replacement Kit: includes parts 18-20, 32, 34-37, 38 (qty. 10), 39, 44 |
| 33 | 16P666 | Switch Kit: includes parts 20, 33, 44, 55 |
| 34 | 16P460 | Enclosure Replacement Kit: includes parts 18-20, 32, 34-37, 38 (qty. 10), 39, 44 |
| 35 | 16E859 | Made in USA Label |
| 36 | 16C936 | Outlet Valve Access Plug |
| 37 | 16P460 | Enclosure Replacement Kit: includes parts 18-20, 32, 34-37, 38 (qty. 10), 39, 44 |
| 38 | 119236 | Enclosure Screw |
| 39 | 16P460 | Enclosure Replacement Kit: includes parts 18-20, 32, 34-37, 38 (qty. 10), 39, 44 |
| 40 | 16R887 | Side Brand Label |
| 41 | 16P162 | Front Brand Label |
| 42 | 16M873 | Adjustable Prime/Spray Valve Repair Kit: includes parts 25, 42-45 |
| 43 | 16M873 | Adjustable Prime/Spray Valve Repair Kit: includes parts 25, 42-45 |
| 44 | 119956 | Pin |
| 45 | 262604 | Prime Valve Handle: includes parts 44, 45 |
| 46 | 16D558 | Battery |
| 47 | 16N448 | Pressure Adjust Stop |
| 51 | 24D425 | Material Cup Cover: includes parts 51, 52 |
| 52 | 16C650 | Seal for Material Cup |
| 53 | 16D562 | Cup Liner Replacements (10 pack) |
| 54 | 24E377 | Shoulder Strap |
| 59 | 16R892 | Cup Lip Brand Label |
| 60 | 16R889 | Pressure Control Label |
| Not Shown | ▲24E609 | Warning Labels Replacement Kits ENG/FRE/SPA |
| | | |
| ▲ *Replacement Danger and Warning labels, tags, and cards are available at no cost.* | | |

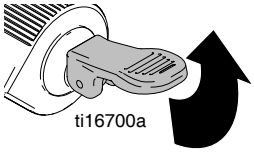
# Inlet Valve Fitting Removal/Service

This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the **Pressure Relief Procedure** when you stop spraying and before cleaning, checking, or servicing the equipment.

Move sprayer to a non-hazardous area before servicing.

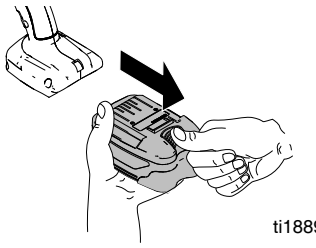
1. Engage trigger lock and pull prime/spray valve UP to release pressure.


ti18866a


ti16700a

2. Remove material cup, flexible suction tube, and battery.

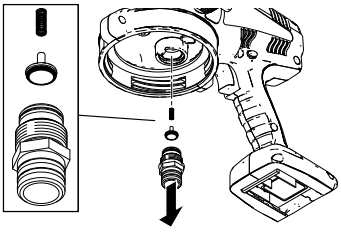
ti18895a


ti18896a

**NOTICE**

When removing flexible suction tube from sprayer, make sure to pull directly on top fitting of flexible suction tube. Flexible suction tube will become damaged if pulled from bottom or on flexible portion.

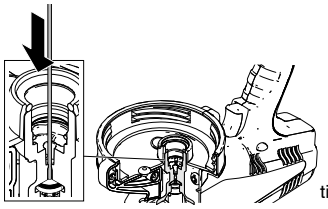
3. Hold sprayer upside-down and use wrench to loosen and remove inlet valve fitting, inlet valve, and spring.


ti18897a

**NOTE:** Make sure the spring also comes out. Use needle-nose pliers to remove if needed. Inlet cavity should be completely empty (as shown below).

4. Clean as much excess material from inlet cavity as possible. Make sure you also clean spring (a), inlet valve (b), o-ring (c), and top of inlet valve fitting (d).

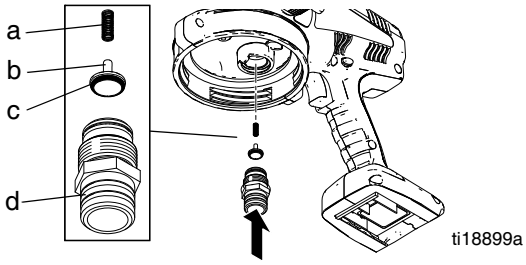
5. Use a thin wire less than 1/16 in. (such as a paper clip) to check that the outlet valve fitting moves freely. If valve does not move freely, perform **Outlet Valve Fitting Repair**, page 26.


ti18898a

## Installation

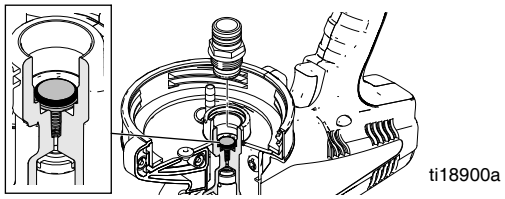
**NOTE:** Before installing, make sure o-ring (c) is installed on poppet valve (b). A needle-nose pliers can also be used to install parts (a - c).

1. Place poppet valve (b) with spring (a) on top of inlet valve fitting (d). Push inlet fitting up into pump cavity.



ti18899a

2. Hold inlet in place and turn sprayer upside-down. Remove inlet valve fitting and visually check to see that inlet valve has seated correctly.

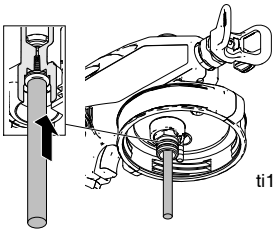

ti18900a

3. Replace inlet fitting and use wrench or socket to tighten to 10 ft-lb (14 N•m).

**NOTICE**

Do **NOT** over-tighten inlet valve fitting. Damage to the equipment will occur.

4. Use a pencil or thin rod to lightly push on inlet valve to make sure it moves up and down freely. Perform **Starting New Job** procedure, page 11.


ti18883a

# Outlet Valve Fitting Repair

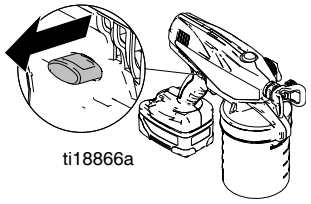
This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the **Pressure Relief Procedure** when you stop spraying and before cleaning, checking, or servicing the equipment.

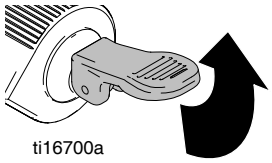
Move sprayer to a non-hazardous area before servicing.

**NOTE:** Before doing any repair to pump, perform **Flushing Sprayer** procedure, page 15.

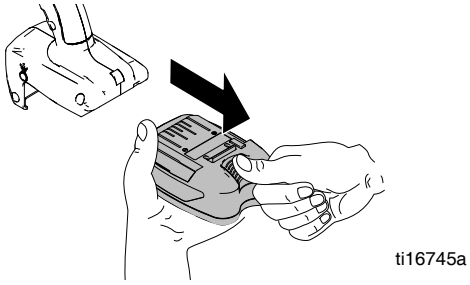
## Removal

1. Engage trigger lock and pull prime/spray valve UP to release pressure.

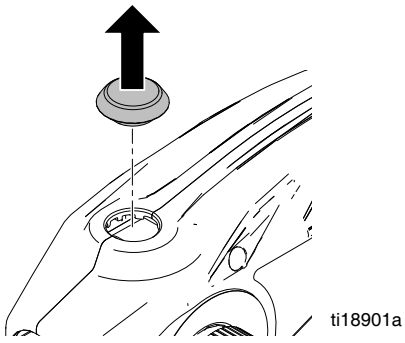


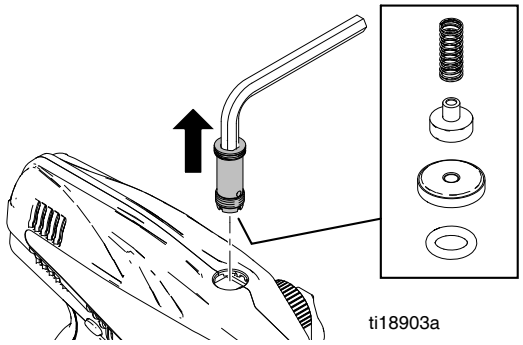

2. Remove battery.




3. Remove outlet valve fitting access plug.

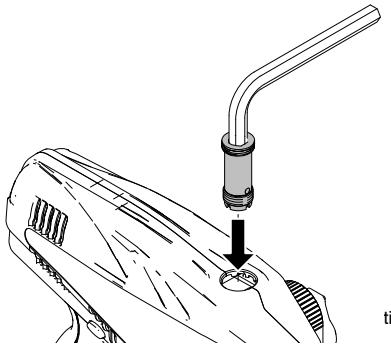



4. Use tool (supplied) to loosen and remove outlet valve fitting. Make sure old o-ring, seat, outlet valve fitting, and spring are out of pump outlet cavity.

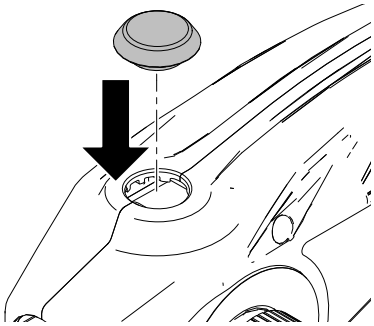



## Installation

1. Screw outlet valve fitting into threads. Use tool (supplied) and tighten to 8 ft-lb (11 N•m).




2. Press outlet valve fitting access plug into place.



# Troubleshooting

This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the **Pressure Relief Procedure** when you stop spraying and before cleaning, checking, or servicing the equipment.

Check everything in this Troubleshooting Table before you bring the sprayer to an authorized service center.

| Problem | Cause | Solution |
|---|---|---|
| Sprayer makes no sound when trigger is pulled | Trigger is locked. | Disengage trigger lock. See page 7. |
| | Sprayer status indicator light is solid RED when triggering, indicating that the battery charge is low, or the battery is too cold. | Replace with charged battery and place old battery in charger, or allow battery to warm up. |
| | Sprayer status indicator light is flashing RED when triggering, indicating that the battery is too hot to operate. | Allow battery to cool. |
| | Sprayer status indicator light does not light when sprayer is triggered. Battery is not installed or is damaged. | Install battery or replace. |
| | Motor/control board kit has reached maximum life. | Replace motor/control board kit. |

| Problem | Cause | Solution |
|---|---|---|
| Sprayer makes sound but no material is sprayed when trigger is pulled | Sprayer is not primed. | Prime the pump. See **Starting a New Job (or Refilling the Material Cup)**, page 11. |
| | | Use pump access armor storage/startup tool to clear pump of debris. See **Storage**, page 17. |
| | | Clean air vent holes or the air vent valve as your model is equipped. See **Shutdown and Cleaning**, page 15. |
| | Prime/spray valve is in UP position. | Put prime/spray valve DOWN to spray position. |
| | Flexible suction tube is missing or improperly installed. | Make sure **Flexible Suction Tube** is properly installed, page 9. |
| | Flexible suction tube strainer or air vent valve or vent holes are clogged. | See **Shutdown and Cleaning**, page 15. |
| | Flexible suction tube o-rings are damaged or missing. | Replace flexible suction tube o-rings. |
| | Flexible suction tube is damaged. | Replace flexible suction tube. |
| | Spray tip is not in SPRAY position. | Turn spray tip to SPRAY position. |
| | Spray tip is clogged. | See **Unclogging Spray Tip/Guard Assembly**, page 14. |
| | Spray tip filter is clogged. | Remove and clean Spray tip filter. See **Unclogging Spray Tip/Guard Assembly**, page 14. |
| | Pressure control knob is too low. | Turn pressure control knob up. |
| | Sprayer has been tilted too far and flexible suction tube has lost contact with material. | Make sure material cup is filled with material. Rotate flexible suction tube, page 9. Do not tilt the material cup too far. Prime the pump. See **Starting a new Job (or Refilling the Material Cup)**, page 11. |
| | No or low material in material cup. | Refill material cup with material and prime the pump. |
| | Inlet valve fitting is stuck from material residue left in sprayer. | Use pump access armor storage/startup tool to clear pump of debris. See **Storage**, page 17. If unsuccessful, see **Inlet Valve Fitting Removal/Service**, page 25. |
| | Pump is clogged, frozen, or has debris inside. | See **Outlet Valve Fitting Repair**, page 26 and **Inlet Valve Fitting Removal/Service**, page 25. |
| | Material is leaking from hole in front of sprayer. | Replace needle assembly. |

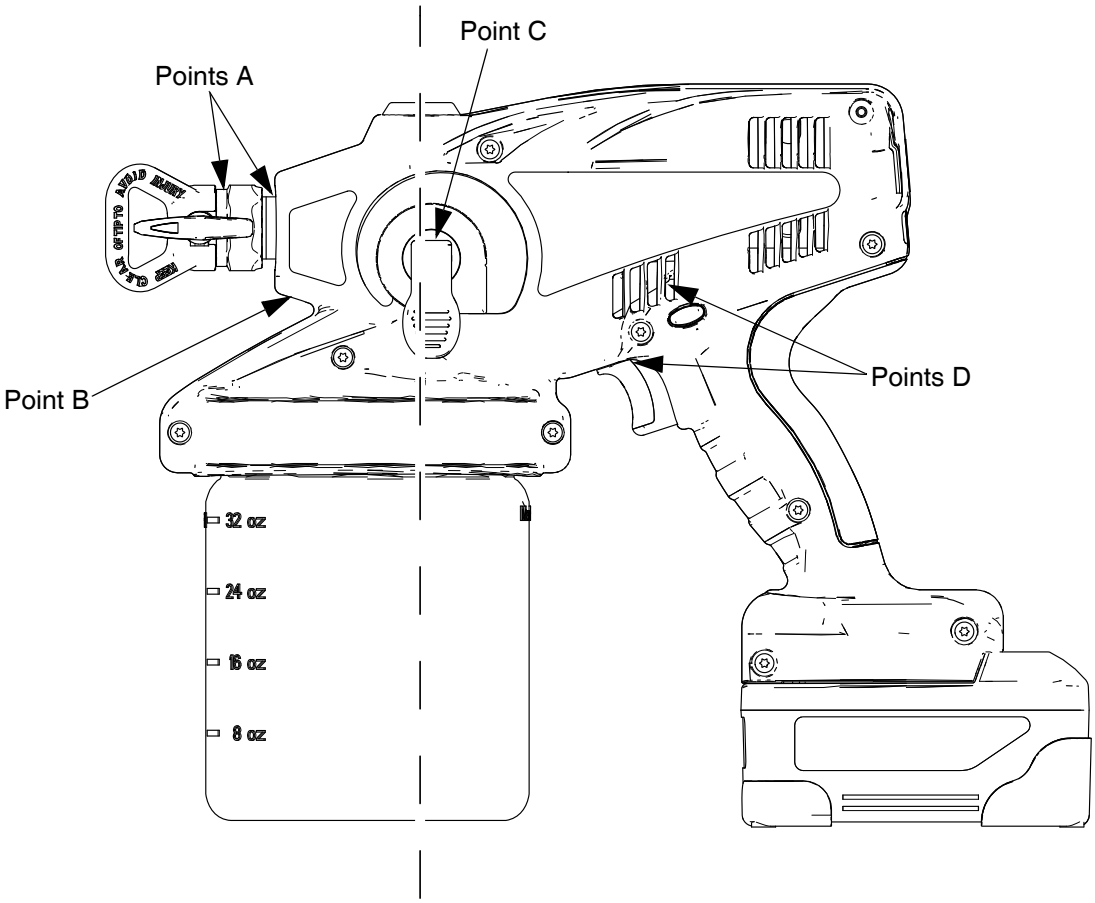
| Problem | Cause | Solution |
|---|---|---|
| Sprayer sprays with poor results | Spray tip is partially clogged. | See **Unclogging Spray Tip/Guard Assembly**, page 14. |
| | Spray tip is not in correct position. | Rotate spray tip to SPRAY position. |
| | Incorrect spray tip for application of material. | See **Choosing the Correct Tip,** page 12. |
| | Spray tip filter is partially clogged or damaged. | Clean or replace spray tip filter. See page 14. |
| | Flexible suction tube strainer is partially clogged. | Clean or replace flexible suction tube. See page 15. |
| | Spray tip is worn or damaged. | Replace spray tip. See **Install Spray Tip/Guard Assembly**, page 13. |
| | Material being sprayed is aerated because it was shaken. | Do **NOT** shake material. Stir the material or check the manufacturer's recommendation for the material being sprayed. |
| | Pressure control knob is too low. | Turn up pressure control knob. |
| | Material being sprayed is too cold to spray. | Warm material. |
| | Inlet or outlet valve fitting is worn. | See **Outlet Valve Fitting Repair**, page 26 and **Inlet Valve Fitting Removal/Service**, page 25. |
| | Pressure is set too high for thin material. | Turn pressure control knob down. |
| Paint leaks from sprayer trigger area. | Pump has reached its maximum life. | Replace pump. |
| Battery is discharged but charger still displays green light when battery is inserted. | Damaged battery. | Replace battery. |
| Battery does not last long. | Battery life varies with material, spray tip size, pressure, and speed setting. | See **Charging the Battery**, page 6. |
| Charger status indicator light remains solid red. Battery does not charge. | Hot charging environment or damaged battery. | See **Charging the Battery**, page 6. Unplug charger from outlet for 10 seconds to reset charger status indicator light. Attempt to charge again. If problem persists, move charger to cooler environment or replace battery. |

## Spray Pattern Diagnostics

| Problem | Cause | Solution |
|---|---|---|
| Spray pattern is pulsating: | Operator is moving too fast while spraying. | Slow speed of movement. |
| | Spray tip or spray tip filter is clogged. | Unclog spray tip or clean spray tip filter, page 14. |

| Problem | Cause | Solution |
|---|---|---|
| Spray pattern has tails:<br> <br>ti15526a | Pressure control knob is too low. | Turn up pressure control knob. |
| | Incorrect spray tip for application of material. | See **Choosing the Correct Tip,** page 12. |
| | Material not compatible with sprayer. | Switch to compatible material. |
| | Inlet or outlet valve fitting is worn. | See **Outlet Valve Fitting Repair**, page 26 and **Inlet Valve Fitting Removal/Service**, page 25. |
| Spray pattern has dripping:<br> | Sprayer is moving too slow for material. | Move sprayer faster while spraying. |
| | Sprayer is too close to target surface. | Move sprayer away from surface 10 in. (25 cm) |
| | Holding trigger while changing spray direction. | Release trigger when changing directions. |
| | Incorrect spray tip for application of material. | See **Choosing the Correct Tip,** page 12. |
| | Pressure control knob is set too high. | Turn down pressure control knob. |
| | Spray tip is worn or damaged. | Replace spray tip. See **Install Spray Tip/Guard Assembly**, page 13. |
| Spray pattern is too narrow:<br> <br>ti15523a | Sprayer is too close to target surface. | Move sprayer away from surface 10 in. (25 cm) |
| | Incorrect spray tip for application of material. | See **Choosing the Correct Tip,** page 12. |
| | Spray tip is worn or damaged. | Replace spray tip. See **Install Spray Tip/Guard Assembly**, page 13. |
| Spray pattern is too wide:<br> <br>ti15527a | Sprayer is too far away from target surface. | Move sprayer closer to surface. |
| | Incorrect spray tip for application of material. | See **Choosing the Correct Tip,** page 12. |
| Spray pattern “spits” at the end or beginning:<br> <br>ti15525a | Excess material has accumulated on spray/tip guard assembly. | See **Shutdown and Cleaning**, page 15. |
| | Spray tip filter is partially clogged or damaged. | Clean or replace filter. See page 14. |
| | Spray tip/guard assembly not threaded completely onto sprayer. | See **Install Spray Tip/Guard Assembly**, page 13. |
| | Seat is worn. | Replace spray tip/guard assembly. |
| Spray tip continues to drip or ooze material after trigger is released:<br> | Spray tip filter is partially clogged or damaged. | Clean or replace filter. See page 14. |
| | Spray tip/guard assembly not threaded completely onto sprayer. | See **Install Spray Tip/Guard Assembly**, page 13. |
| | Seat is worn. | Replace spray tip/guard assembly. |
| | If the three solutions above do not solve the problem, replace needle assembly. | |

# Troubleshooting Leaks




| Problem | Cause | Solution |
|---|---|---|
| Sprayer is leaking fluid at Points A | Spray/tip guard assembly is loose. | Tighten spray/tip guard assembly. |
| | O-ring inside needle assembly is worn out. | Replace o-ring (108195). |
| Sprayer is leaking fluid at Point B | O-ring on rear of needle assembly is worn out. | Replace o-ring (108195). |
| | If 3 solutions above do not stop the leaking, replace needle assembly kit. | |
| Sprayer is leaking fluid at Point C | Prime/spray valve assembly is worn out. | Replace prime/spray valve assembly. |
| Sprayer is leaking fluid at Points D | Pump is worn out. | Replace bare or complete housing assembly. |

# Technical Data

| Hand-Held Sprayer (Models 16N657, 16M886, 16N660, 24R747) | | |
|---|---|---|
| | **U.S.** | **Metric** |
| Adjustable pressure range | 1000 - 2000 psi | 7.0 - 14 MPa, 69 -138 bar |
| Maximum working pressure | 2000 psi | 14 MPa, 138 bar |
| Weight | 6.48 lb | 2.94 kg |
| Dimensions: | | |
| Length | 13.75 in. | 34.9 cm |
| Width | 5.25 in. | 13.3 cm |
| Height | 10.25 in. | 26.0 cm |
| Storage temperature range ◆❖ | 32° to 113° F | 0° to 45° C |
| Operating temperature range ✔ | 40° to 90° F | 4° to 32° C |
| Storage humidity range | 0% to 95% relative humidity, non-condensing | 0% to 95% relative humidity, non-condensing |
| Sound pressure level | 73.2 dBa† sound pressure level<br>84.2 dBa† sound power level | 73.2 dBa† sound pressure level<br>84.2 dBa† sound power level |
| Vibration level acceleration | Less than 5.5 feet/s$^2$ †† | Less than 1.7 m/s$^2$†† |
| **Charger:** | | |
| Charging time | 45 minutes to 80%,<br>75 minutes to 100% | 45 minutes to 80%,<br>75 minutes to 100% |
| Power source | 120 VAC | 120 VAC |
| **Battery (Lithium Ion):** | | |
| Voltage (DC) | 20 V Maximum ††† | 20 V Maximum |
| Capacity | 2.4 Ah, 43.2 Wh | 2.4 Ah, 43.2 Wh |

◆ Pump damage will occur if fluid freezes in pump.

❖ Damage to plastic parts may result if impact occurs in low temperature conditions.

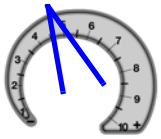
✔ Changes in paint viscosity at very low or very high temperatures can affect sprayer performance.

† per ISO 9614-2 measured at 3.3 feet (1m)

†† per ISO 5349, no load condition

††† Maximum measured battery voltage is 20V. Average running voltage is 18V.

# Preferred Material Settings Log

| | Date | Item Sprayed | Material Sprayed | Spray Tip | Pressure Setting (Mark Dial) |
|---|---|---|---|---|---|
| EXAMPLE | 03/24/2011 | Crown molding | | PST515 |  |
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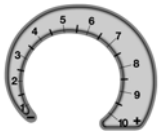
| | | | | |  |

# Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

**THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE**.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

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